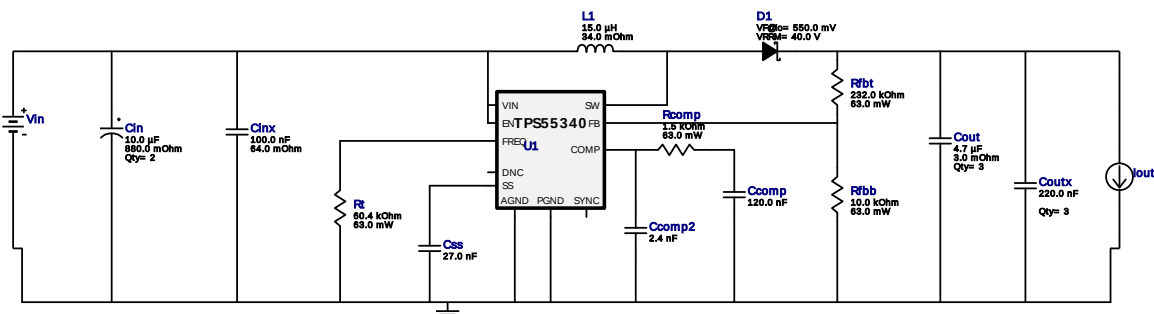
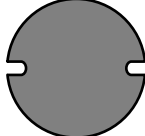


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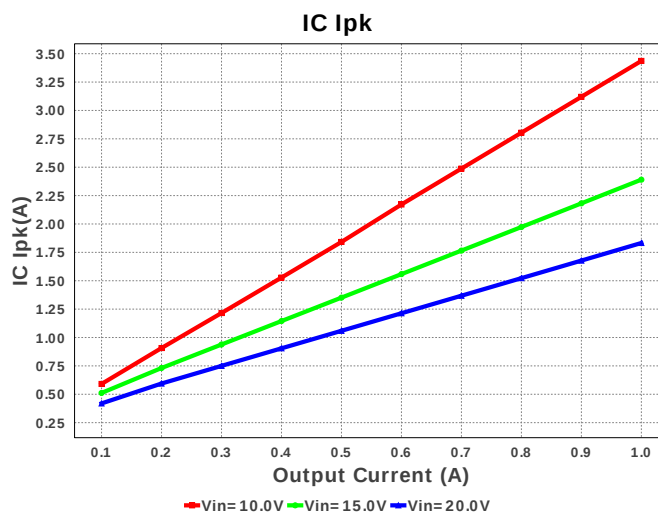
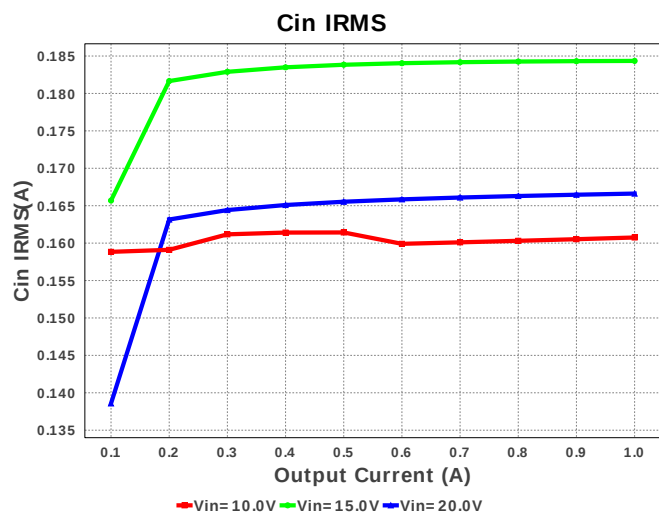
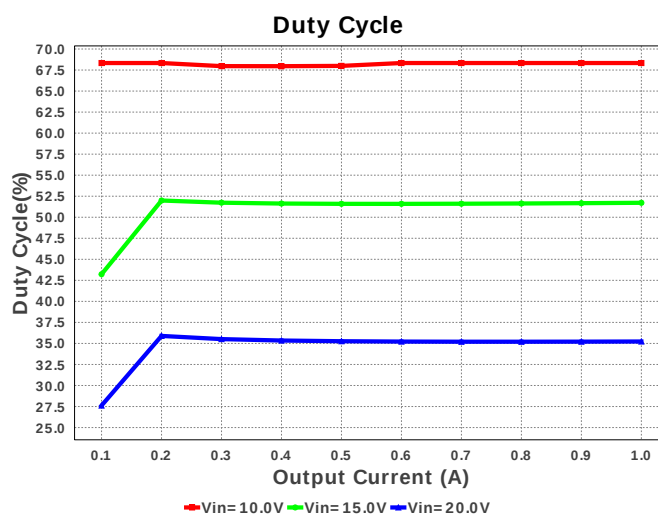
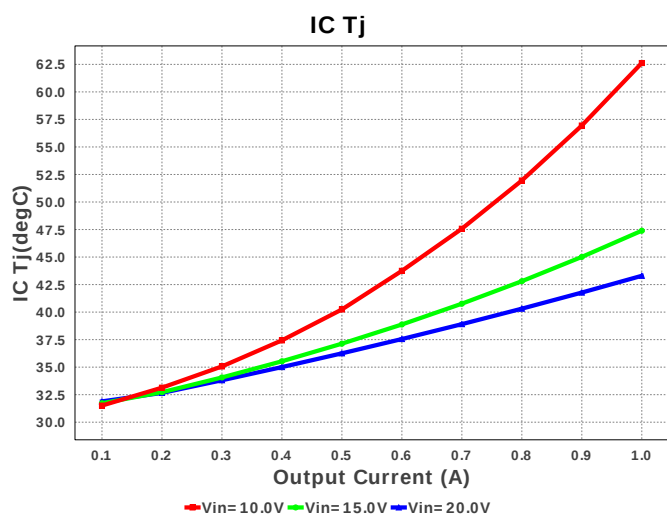
Design : 4632468/36 TPS55340RTER
TPS55340RTER 10.0V-20.0V to 30.00V @ 1.0A

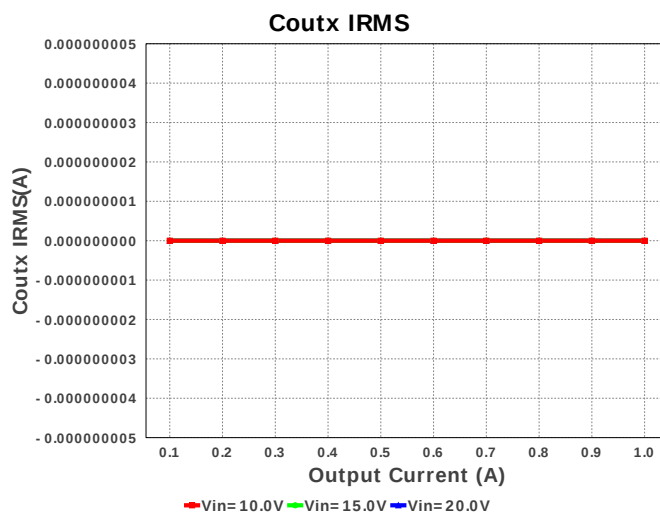
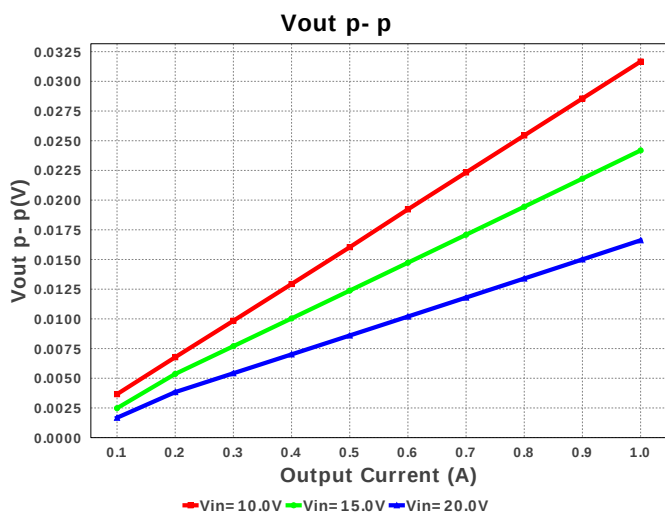
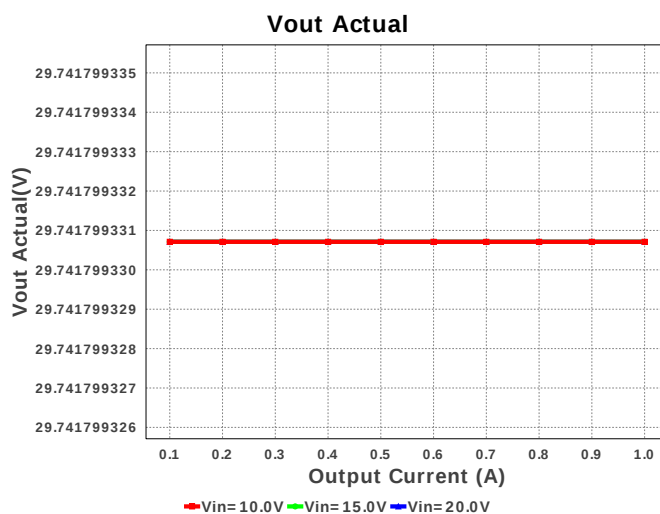
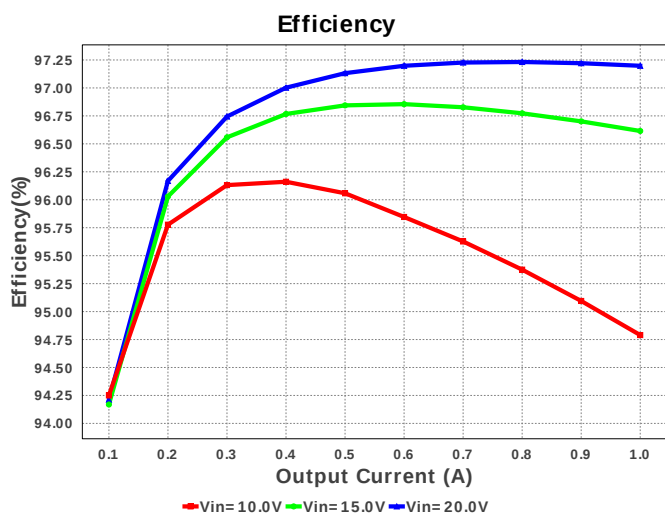
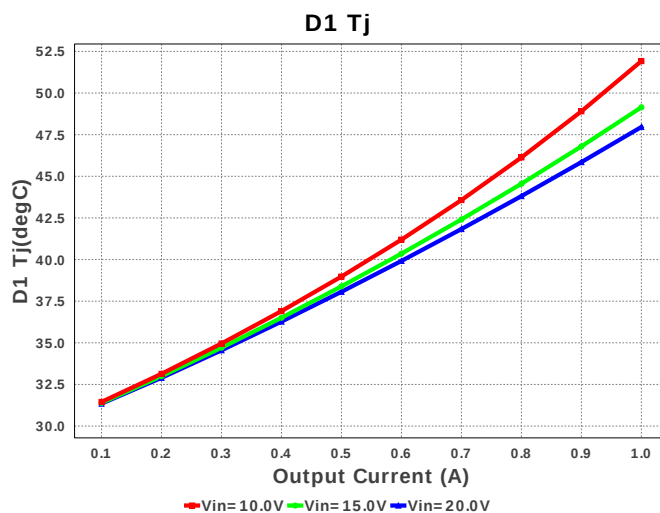
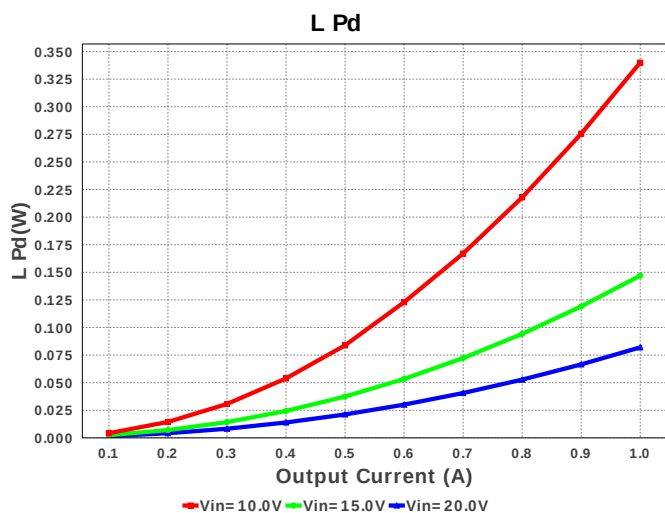


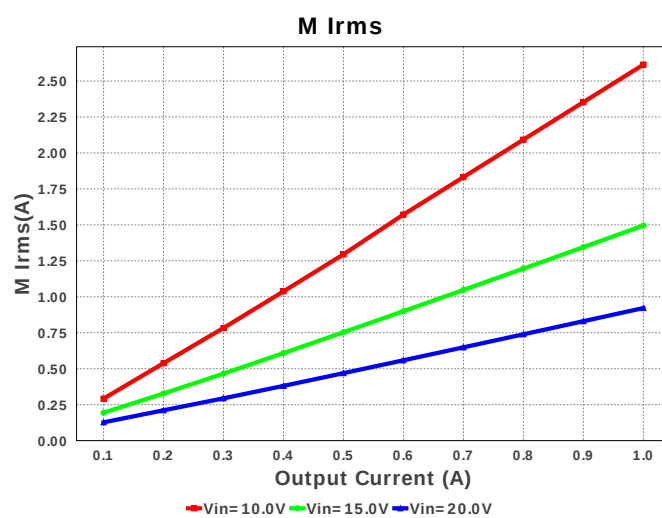
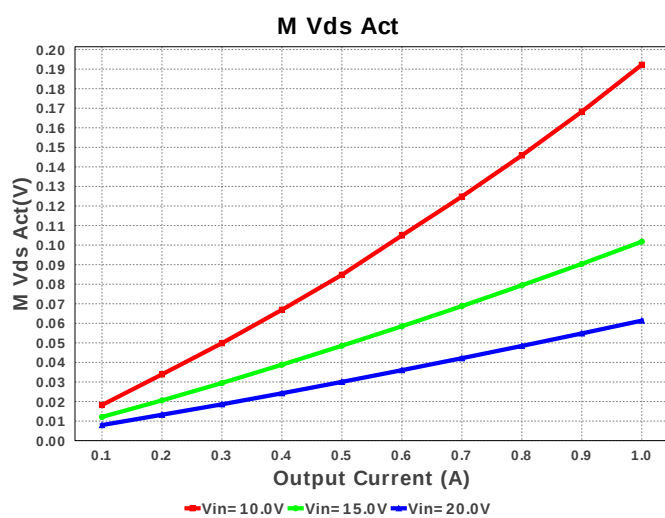
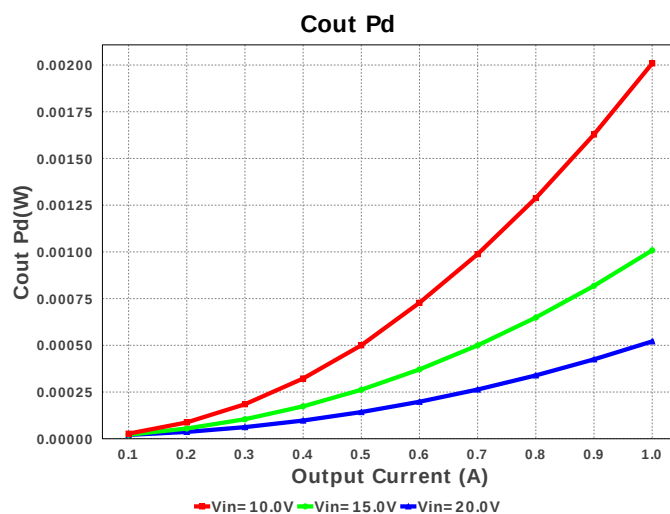
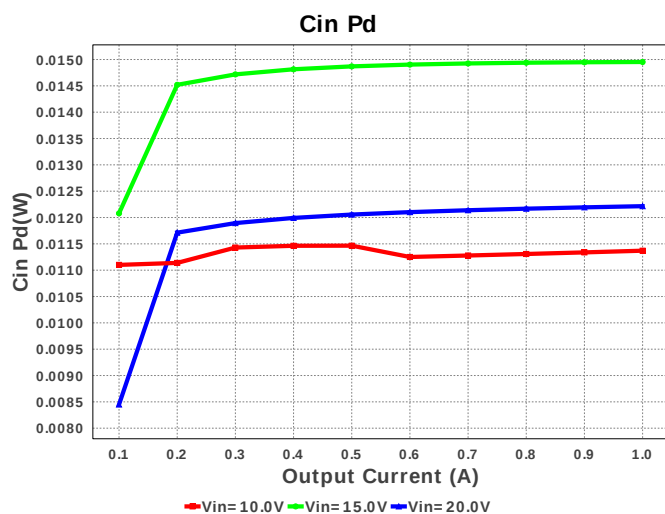
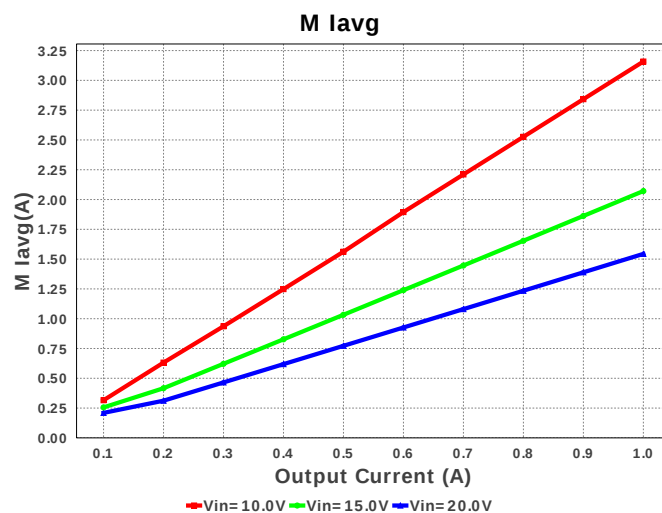
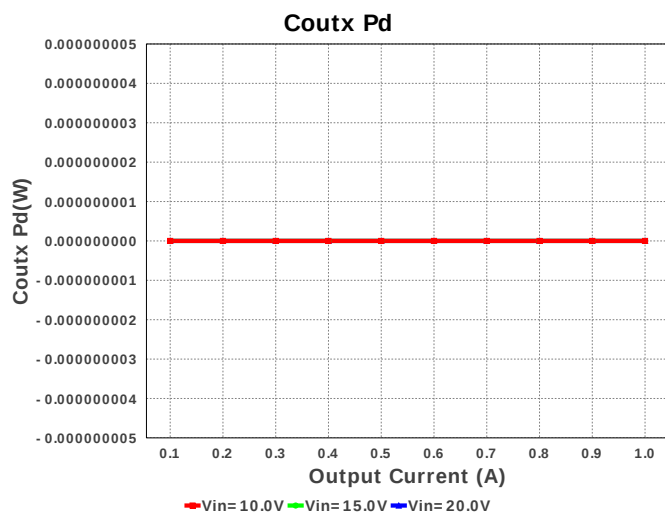
Electrical BOM

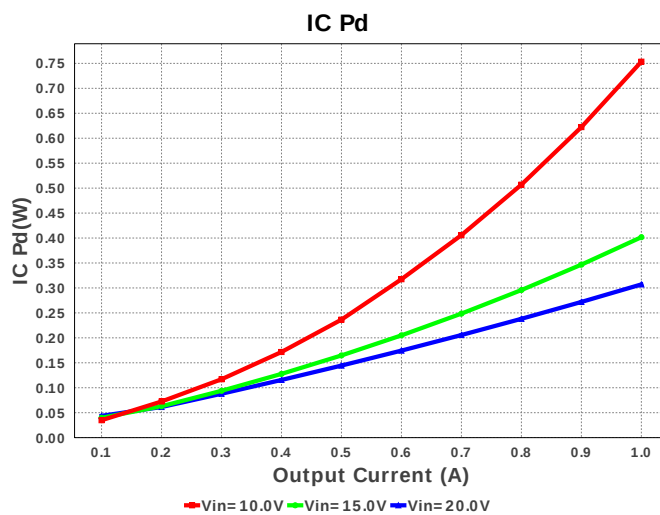
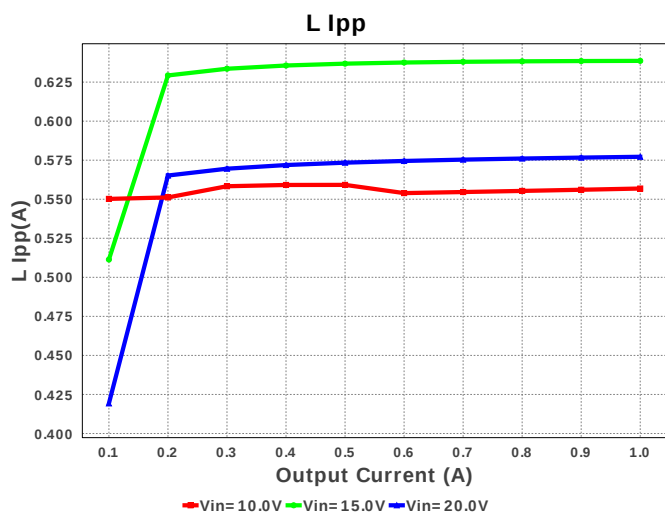
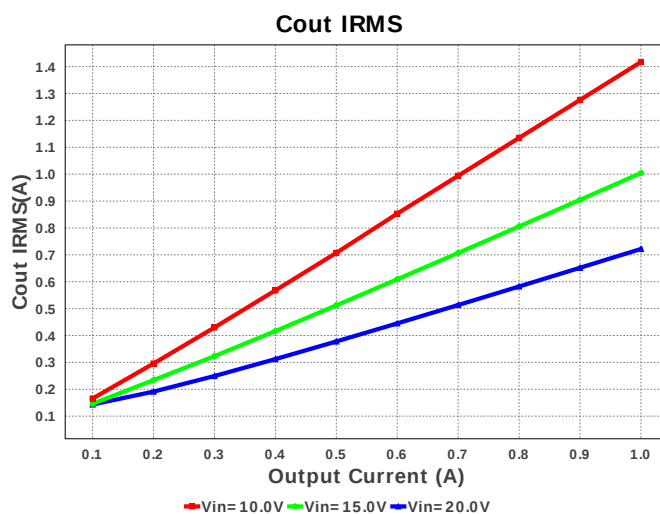
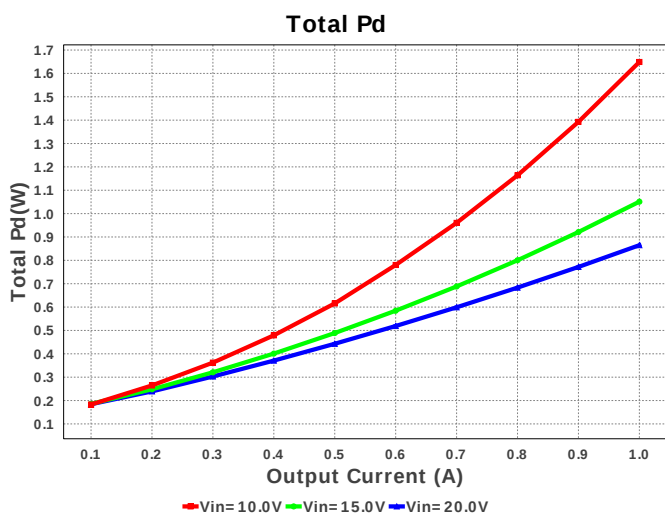
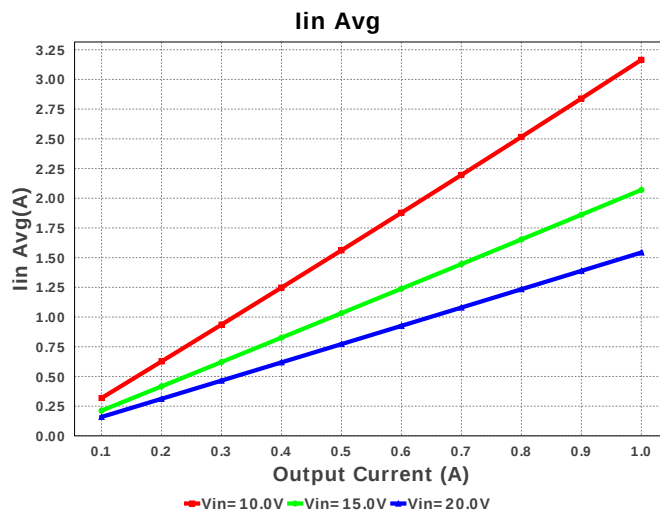
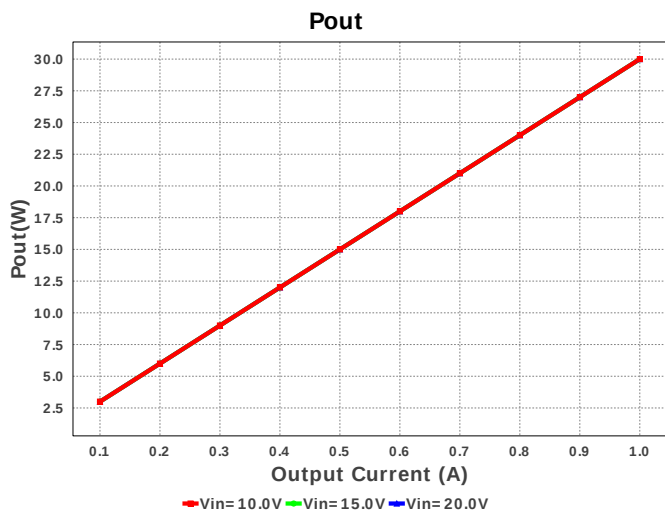
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
1.	Ccomp	MuRata	GRM155C80J124KE01D Series= X6S	Cap= 120.0 nF VDC= 6.3 V IRMS= 0.0 A	1	\$0.02	 0402 3 mm ²
2.	Ccomp2	MuRata	GRM1885C1H242JA01D Series= C0G/NP0	Cap= 2.4 nF VDC= 50.0 V IRMS= 0.0 A	1	\$0.01	 0603 5 mm ²
3.	Cin	Nichicon	UUD1H100MCL1GS Series= uD	Cap= 10.0 uF ESR= 880.0 mOhm VDC= 50.0 V IRMS= 165.0 mA	2	\$0.10	 SM_RADIAL_6.3AMM 80 mm ²
4.	Cinx	Kemet	C0805C104K5RACTU Series= X7R	Cap= 100.0 nF ESR= 64.0 mOhm VDC= 50.0 V IRMS= 1.64 A	1	\$0.01	 0805 7 mm ²
5.	Cout	MuRata	GRM31CR71H475KA12L Series= X7R	Cap= 4.7 uF ESR= 3.0 mOhm VDC= 50.0 V IRMS= 4.98 A	3	\$0.07	 1206 11 mm ²
6.	Coutx	Taiyo Yuden	UMK212B7224KG-T Series= X7R	Cap= 220.0 nF VDC= 50.0 V IRMS= 0.0 A	3	\$0.02	 0805 7 mm ²
7.	Css	MuRata	GRM155R61C273KA01D Series= X5R	Cap= 27.0 nF VDC= 16.0 V IRMS= 0.0 A	1	\$0.01	 0402 3 mm ²
8.	D1	Diodes Inc.	B540C-13-F	VF@Io= 550.0 mV VRRM= 40.0 V	1	\$0.17	 SMC 83 mm ²
9.	L1	Bourns	SDR1307-150ML	L= 15.0 uH DCR= 34.0 mOhm	1	\$0.35	 SDR1307 227 mm ²
10.	Rcomp	Vishay-Dale	CRCW04021K50FKED Series= CRCW..e3	Res= 1.5 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm ²

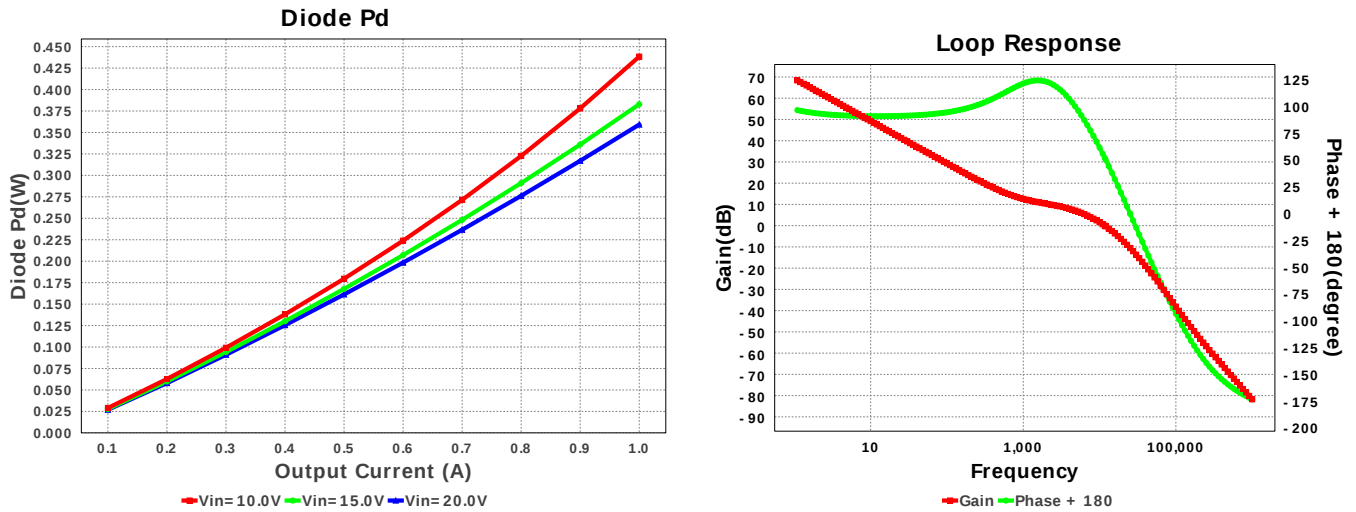
#	Name	Manufacturer	Part Number	Properties	Qty	Price	Footprint
11.	Rfbb	Vishay-Dale	CRCW040210K0FKED Series= CRCW..e3	Res= 10.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
12.	Rfbt	Vishay-Dale	CRCW0402232KFKED Series= CRCW..e3	Res= 232.0 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
13.	Rt	Vishay-Dale	CRCW040260K4FKED Series= CRCW..e3	Res= 60.4 kOhm Power= 63.0 mW Tolerance= 1.0%	1	\$0.01	 0402 3 mm²
14.	U1	Texas Instruments	TPS55340RTER	Switcher	1	\$1.85	 S-PWQFN-N16 17 mm²











Operating Values

#	Name	Value	Category	Description
1.	Cin IRMS	160.751 mA	Current	Input capacitor RMS ripple current
2.	Cout IRMS	1.406 A	Current	Output capacitor RMS ripple current
3.	Coutx IRMS	0.0 A	Current	Output capacitor_x RMS ripple current
4.	IC IpK	3.436 A	Current	Peak switch current in IC
5.	Iin Avg	3.165 A	Current	Average input current
6.	L Ipp	556.86 mA	Current	Peak-to-peak inductor ripple current
7.	M Iavg	3.158 A	Current	MOSFET Average current
8.	M1 Irms	2.614 A	Current	Q Iavg
9.	BOM Count	19	General	Total Design BOM count
10.	FootPrint	569.0 mm ²	General	Total Foot Print Area of BOM components
11.	Frequency	778.91 kHz	General	Switching frequency
12.	IC Tolerance	9.0 mV	General	IC Feedback Tolerance
13.	M Vds Act	192.232 mV	General	Voltage drop across the MosFET
14.	Mode	CCM	General	Conduction Mode
15.	Pout	30.0 W	General	Total output power
16.	Total BOM	\$2.93	General	Total BOM Cost
17.	D1 Tj	51.918 degC	Op_Point	D1 junction temperature
18.	Low Freq Gain	68.096 dB	Op_Point	Gain at 10Hz
19.	Vout Actual	29.742 V	Op_Point	Vout Actual calculated based on selected voltage divider resistors
20.	Vout OP	30.0 V	Op_Point	Operational Output Voltage
21.	Cross Freq	6.177 kHz	Op_point	Bode plot crossover frequency
22.	Duty Cycle	68.333 %	Op_point	Duty cycle
23.	Efficiency	94.79 %	Op_point	Steady state efficiency
24.	Gain Marg	-9.954 dB	Op_point	Bode Plot Gain Margin
25.	IC Tj	62.623 degC	Op_point	IC junction temperature
26.	ICThetaJA	43.3 degC/W	Op_point	IC junction-to-ambient thermal resistance
27.	IOUT_OP	1.0 A	Op_point	Iout operating point
28.	Phase Marg	55.899 deg	Op_point	Bode Plot Phase Margin
29.	VIN_OP	10.0 V	Op_point	Vin operating point
30.	Vout p-p	38.494 mV	Op_point	Peak-to-peak output ripple voltage
31.	Cin Pd	11.37 mW	Power	Input capacitor power dissipation
32.	Cout Pd	1.976 mW	Power	Output capacitor power dissipation
33.	Coutx Pd	0.0 W	Power	Output capacitor_x power loss
34.	Diode Pd	438.36 mW	Power	Diode power dissipation
35.	IC Pd	753.431 mW	Power	IC power dissipation
36.	L Pd	339.937 mW	Power	Inductor power dissipation
37.	Total Pd	1.649 W	Power	Total Power Dissipation
38.	Vout Tolerance	2.683 %		Vout Tolerance based on IC Tolerance (no load) and voltage divider resistors if applicable

Design Inputs

#	Name	Value	Description
1.	Iout	1.0	Maximum Output Current
2.	VinMax	20.0	Maximum input voltage
3.	VinMin	10.0	Minimum input voltage
4.	Vout	30.0	Output Voltage
5.	base_pn	TPS55340	Base Product Number
6.	source	DC	Input Source Type
7.	Ta	30.0	Ambient temperature

Design Assistance

1. **TPS55340** Product Folder : <http://www.ti.com/product/TPS55340> : contains the data sheet and other resources.

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